

**Notice of Allowability**

Application No.

10/727,816

Applicant(s)

HOOD ET AL.

Examiner

Robert J. Hoffberg

Art Unit

2835

**-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address--**

All claims being allowable, PROSECUTION ON THE MERITS IS (OR REMAINS) CLOSED in this application. If not included herewith (or previously mailed), a Notice of Allowance (PTOL-85) or other appropriate communication will be mailed in due course. **THIS NOTICE OF ALLOWABILITY IS NOT A GRANT OF PATENT RIGHTS.** This application is subject to withdrawal from issue at the initiative of the Office or upon petition by the applicant. See 37 CFR 1.313 and MPEP 1308.

1. ☒ This communication is responsive to 5/7/07.
2. ☒ The allowed claim(s) is/are 1-5, 7-11, 13-18 and 20-22.
3. ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some\* c) ☐ None of the:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

\* Certified copies not received: \_\_\_\_\_.

Applicant has THREE MONTHS FROM THE "MAILING DATE" of this communication to file a reply complying with the requirements noted below. Failure to timely comply will result in ABANDONMENT of this application.

**THIS THREE-MONTH PERIOD IS NOT EXTENDABLE.**

4. ☐ A SUBSTITUTE OATH OR DECLARATION must be submitted. Note the attached EXAMINER'S AMENDMENT or NOTICE OF INFORMAL PATENT APPLICATION (PTO-152) which gives reason(s) why the oath or declaration is deficient.
5. ☐ CORRECTED DRAWINGS (as "replacement sheets") must be submitted.
- (a) ☐ including changes required by the Notice of Draftsperson's Patent Drawing Review (PTO-948) attached
- 1) ☐ hereto or 2) ☐ to Paper No./Mail Date \_\_\_\_\_.
- (b) ☐ including changes required by the attached Examiner's Amendment / Comment or in the Office action of Paper No./Mail Date \_\_\_\_\_.
- Identifying indicia such as the application number (see 37 CFR 1.84(c)) should be written on the drawings in the front (not the back) of each sheet. Replacement sheet(s) should be labeled as such in the header according to 37 CFR 1.121(d).
6. ☐ DEPOSIT OF and/or INFORMATION about the deposit of BIOLOGICAL MATERIAL must be submitted. Note the attached Examiner's comment regarding REQUIREMENT FOR THE DEPOSIT OF BIOLOGICAL MATERIAL.

**Attachment(s)**

- |  |  |
|--|--|
| 1. <input type="checkbox"/> Notice of References Cited (PTO-892)   | 5. <input type="checkbox"/> Notice of Informal Patent Application  |
| 2. <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                       | 6. <input checked="" type="checkbox"/> Interview Summary (PTO-413),<br>Paper No./Mail Date <u>attached</u> . |
| 3. <input type="checkbox"/> Information Disclosure Statements (PTO/SB/08),<br>Paper No./Mail Date _____    | 7. <input checked="" type="checkbox"/> Examiner's Amendment/Comment  |
| 4. <input type="checkbox"/> Examiner's Comment Regarding Requirement for Deposit<br>of Biological Material | 8. <input checked="" type="checkbox"/> Examiner's Statement of Reasons for Allowance                         |
|  | 9. <input type="checkbox"/> Other _____.   |

***Detailed Action***

**EXAMINER'S AMENDMENT**

1. An examiner's amendment to the record appears below. Should the changes and/or additions be unacceptable to applicant, an amendment may be filed as provided by 37 CFR 1.312. To ensure consideration of such an amendment, it MUST be submitted no later than the payment of the issue fee.

Authorization for this examiner's amendment was given in a telephone interview with Joseph R. Mencher, Reg. No. 56,822 on 5/16/07.

2. Amend claims 1, 7, 14, 21 and 22 as follows:

Claim 1: A processor loading apparatus comprising:

a board member;

a processor socket mounted on the board member;

a processor seated in the processor socket;

a frame member defining a processor aperture, comprising a heat sink engagement surface adjacent to the perimeter of the processor aperture, and mounted on the board member such that the processor extends into the processor aperture, wherein the heat sink engagement surface is operable to support a heat sink that is thermally coupled to the processor;

a plurality of connector portions on the frame member, one of the connector portions located in the processor aperture and below the heat sink engagement surface;

a curved resilient load member comprising a load member surface wherein the curved resilient load member comprises a first end connected to ~~one of~~ the connector

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~~portions~~ portion located in the processor aperture and below the heat sink engagement surface and a second end connected to another one of the connector portions, whereby the connection of the second end deforms the curved load member into a substantially parallel engagement with the processor such that the load member surface is located below the heat sink engagement surface ~~and~~ in order for the curved resilient load member ~~applies to~~ apply a constant compressive force to the processor sufficient to mate the processor with the processor socket; and the resilient load member having an opening formed therein permitting the processor to extend through the opening into contact with a heat sink, whereby the deformation of the curved resilient load member into a substantially parallel engagement with the processor results in a non-compressive force that is not transferred to the processor socket due to the coupling of the curved load member to the frame member.

Claim 7: A heat sink mounting apparatus comprising:

- a board member;
- a support member mounted on the board member;
- a processor socket mounted on the board member;
- a processor seated in the processor socket;
- a frame member defining a processor aperture, comprising a heat sink engagement surface adjacent to the perimeter of the processor aperture, and mounted on the board member such that the processor extends into the processor aperture;

a plurality of connector members on the frame member, one of the connector members located in the processor aperture and below the heat sink engagement surface;

a curved resilient load member comprising a load member surface wherein the curved resilient load member comprises a first end connected to ~~one of the connector members~~ member located in the processor aperture and below the heat sink engagement surface and a second end connected to another one of the connector members, whereby the connection of the second end deforms the curved load member into a substantially parallel engagement with the processor such that the load member surface is located below the heat sink engagement surface in order for the curved resilient load member ~~applies to~~ apply a constant compressive force to the processor sufficient to mate the processor with the processor socket;

a heat sink mounted on the frame member in engagement with and supported by the heat sink engagement surface, thermally coupled to the processor, and located above the load member surface; and

the resilient load member having an opening formed therein permitting the processor to extend through the opening into contact with the heat sink, whereby the deformation of the curved resilient load member into a substantially parallel engagement with the processor results in a non-compressive force that is not transferred to the processor socket due to the coupling of the curved load member to the frame member.

Claim 14: An information handling system comprising:

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a board member;

a support member mounted on the board member;

a processor socket mounted on the board member and coupled to a mass storage device and a system memory;

a processor seated in the processor socket;

a frame member defining a processor aperture, comprising a heat sink engagement surface adjacent to the perimeter of the processor aperture, and mounted on the board member such that the processor extends into the processor aperture;

a plurality of connector members on the frame member, one of the connector members located in the processor aperture and below the heat sink engagement surface;

a curved resilient load member comprising a load member surface wherein the curved resilient load member comprises a first end connected to ~~one of~~ the connector members member located in the processor aperture and below the heat sink engagement surface and a second end connected to another one of the connector members, whereby the connection of the second end deforms the curved load member into a substantially parallel engagement with the processor such that the load member surface is located below the heat sink engagement surface ~~and~~ in order for the curved resilient load member ~~applies to~~ apply a constant compressive force to the processor sufficient to mate the processor with the processor socket;

a heat sink connected to the frame member, supported by the heat sink engagement surface, and located above the load member surface; and

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the resilient load member having an opening formed therein permitting the processor to extend through the opening into contact with the heat sink, whereby the deformation of the curved resilient load member into a substantially parallel engagement with the processor results in a non-compressive force that is not transferred to the processor socket due to the coupling of the curved load member to the frame member.

Claim 21: A method for mating a processor to a processor socket and mounting a heat sink in an information handling system comprising:

- providing a board member;

- mounting a support member on the board member;

- mounting a processor socket on the board member;

- coupling a mass storage device and a system memory to the processor socket;

- providing a processor seated in the processor socket;

- mounting a frame member on the board member, wherein the frame member defining a processor aperture, comprises a heat sink engagement surface adjacent to the perimeter of the processor aperture;

- providing a plurality of connector members on the frame member, one of the connector members located in the processor aperture and below the heat sink engagement surface;

- providing a curved resilient load member comprising a load member surface, wherein the curved resilient load member comprises a first end connected to ~~one of the~~ connector ~~members~~ member located in the processor aperture and below the heat sink

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engagement surface and a second end connected to another one of the connector members, whereby the connection of the second end deforms the curved load member into a substantially parallel engagement with the processor such that the load member surface is located below the heat sink engagement surface ~~and~~ in order for the curved resilient load member ~~applies to apply~~ a constant compressive force to the processor sufficient to mate the processor with the processor socket; and wherein the resilient load member includes an opening formed therein permitting the processor to extend through the opening into contact with a heat sink, whereby the deformation of the curved resilient load member into a substantially parallel engagement with the processor results in a non-compressive force that is not transferred to the processor socket due to the coupling of the curved load member to the frame member; and.

providing the a heat sink connected to the frame member adjacent to the load member, ~~and in engagement with the heat sink engagement surface,~~ thermally coupled to the processor, and located above the load member surface; and

~~the resilient load member having an opening formed therein permitting the processor to extend through the opening into contact with the heat sink, whereby the deformation of the curved resilient load member into a substantially parallel engagement with the processor results in a non-compressive force that is not transferred to the processor socket due to the coupling of the curved load member to the frame member.~~

Claim 22: A heat sink mounting apparatus comprising:

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a board member;

a processor socket mounted on the board member;

a processor seated in the processor socket;

a frame member defining a processor aperture, comprising a heat sink engagement surface adjacent to the perimeter of the processor aperture, and mounted on the board member such that the processor extends into the processor aperture;

a plurality of connector members on the frame member, one of the connector members located in the processor aperture and below the heat sink engagement surface;

a curved resilient load member comprising a load member surface, wherein the curved resilient load member comprises a first end connected to ~~one of the connector members~~ member located in the processor aperture and below the heat sink engagement surface and a second end connected to another one of the connector members, whereby the connection of the second end deforms the curved load member into engagement with the processor such that the load member surface is located below the heat sink engagement surface and in order for the curved resilient load member ~~applies to apply~~ a constant compressive force to the processor sufficient to mate the processor with the processor socket;

a heat sink mounted on the frame member, thermally coupled to the processor, and supported by the heat sink engagement surface above the load member surface;  
and



the resilient load member having an opening formed therein permitting the processor to extend through the opening into contact with the heat sink, whereby the deformation of the curved resilient load member into a substantially parallel engagement with the processor results in a non-compressive force that is not transferred to the processor socket due to the coupling of the curved load member to the frame member.

### **REASONS FOR ALLOWANCE**

3. The claims 1-5, 7-11, 13-18 and 20-22 are allowable over the prior art of record for at least the reason that the prior art fails to teach or suggest a structure as in claim 1, 7, 14, 21 and 22 having "one of the connector portions located in the processor aperture and below the heat sink engagement surface" and "a heat sink mounted on the frame member" and "supported by the heat sink engagement surface". The aforementioned limitations in combination with all remaining limitations of the respective claims are believed to render said independent claims 1, 7, 14, 21, 22 and all claims dependent therefrom patentable over art of record.

4. The closest references to the present invention are believed to be as follows: Villanueva et al. (US 6,970,354 and 2005/0030718) discloses a board member, a processor socket, a processor, a frame member having a processor aperture and a plurality of connector members, a resilient load member, but fails to disclose one of the connector portions located in the processor aperture and below the heat sink engagement surface and a heat sink mounted on the frame member and supported by

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the heat sink engagement surface. These above listed references all lack the specific structure and arrangement in claims 1, 7, 14, 21 or 22.

5. Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."

6. None of the cited references, either taken alone or in combination is believed to render the present invention unpatentable as claimed.

7. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Robert J. Hoffberg whose telephone number is (571) 272-2761. The examiner can normally be reached on 8:30 AM - 4:30 PM Mon - Fri.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Jayprakash Gandhi can be reached on (571) 272-3740. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

RJH 5/16/07

  
5/18/07  
JAYPRAKASH GANDHI  
SUPERVISORY PATENT EXAMINER